REMARKS

Prior to entry of this paper, Claims 1-3, 8, 11-13, 15, 16, 21, 26 and 35-39 were pending. Claims 1-3, 8, 11-13, 15, 16, 21, 26 and 35-39 were rejected. No amendments are made in this paper. Claims 1-3, 8, 11-13, 15, 16, 21, 26 and 35-39 are currently pending. For at least the following reasons, Applicants respectfully submit that each of the presently pending claims is in condition for allowance.

Rejections under 35 U.S.C. § 103

Claims 1, 2, 8, 11-13, 15, 16, 21, 26, and 35-39 were rejected under 35 U.S.C. § 102(b) as being anticipated by Okabe et al. (U.S. Patent No. 6,572,475) hereafter "Okabe", in view of Cascone et al. (U.S. Patent No. 6,959,094) hereafter "Cascone", and Chace (U.S. Patent No. 4,792,974) (Although it appears that the Examiner intended the rejection to be under 35 U.S.C. § 103(a) rather than 35 U.S.C. § 102 (b)). Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over, Okabe et al. (U.S. Patent No. 6,572,475) hereafter "Okabe", Cascone et al. (U.S. Patent No. 6,959,094) hereafter "Cascone", and Chace (U.S. Patent No. 4,792,974) in view of Nakagawa (U.S. Patent No. 6,760,050). Each of these rejections is respectfully traversed.

Claims 1, 15, 21, and 26 each recite the providing of spatial sound data in at least two channels of a single audio file associated with a fast-moving object where the recorded spatial sound data includes spatial approaching sound data recorded in a first channel of the audio file and spatial retreating sound data recorded in another channel of the audio file. None of the cited references teach or suggest recording spatial approaching sound data in one channel of a single audio file and spatial retreating sound data in another channel of that audio file.

An advantage of this arrangement is that only a single audio file is loaded to provide both the approaching sound and retreating sound for a fast moving object with appropriate Doppler shift. Moreover, the sounds are recorded and so there is no necessity to engage in calculations or other modifications to create the approaching/retreating sounds or to mix these sounds together. This is valuable in many game applications because this reduces the time and processor overhead needed to produce these sounds. There is no need to load additional audio files as the object switches from

approaching to retreating (or vice versa) or to compute and modify sound elements (e.g., adding a Doppler effect to a sound) or mix sound elements.

The Office Action also acknowledges that "Okabe does not explicitly state that the sounds of 'the engine sound of car A becomes gradually higher (Doppler Effect)' and 'the engine sound becomes gradually lower (Doppler Effect)' are recorded with the Doppler effect."

The Office Action turns to Cascone; however, Cascone does not even mention the Doppler effect, much less suggest that sounds be recorded to account for the Doppler effect. The Office Action acknowledges that Cascone does not mention the Doppler effect.

Moreover, Cascone does not teach or suggest recording related sound data (e.g., approaching or retreating sound data) in two channels of a single audio file. At best, the background section of Cascone, which is relied upon in the Office Action, teaches recording different sounds in different audio files. Cascone does not teach or suggest the advantages of recording sounds in different channels of a single audio file to reduce the time needed to access each audio file. This is particularly useful for the approaching and retreating sound data for fast moving objects because in many instances the two sounds will be used sequentially (e.g., approaching sound data followed by retreating sound data) for the object. None of the other references teach or suggest providing the approaching/retreating sound data as different channels of a single audio file.

In addition, Cascone teaches combining the sounds from different audio files using an interpolation technique. Cascone, Col. 1:21-57. These interpolation and other calculation techniques for combining sounds require additional processor time and resources. None of the references teach or suggest providing approaching and retreating sound data in two separate channels of the audio file so that both can be accessed, without requiring additional interpolation, calculation, or mixing, when the audio file has been loaded.

The Office proposes to combine the alleged teachings of Okabe and Cascone with the alleged teachings of Chace to produce approaching and retreating effects by storing a panned version of the sound in stereo or in a surround format. However, it is respectfully submitted that this proposed combination still fails to teach or suggest recording spatial approaching sound data in one channel of a single audio file and spatial retreating sound data in another channel of that audio file. Chace discusses following a pan which can be used, for example, to follow a car from its start

to its end position, or, for a gun battle, the sound can be moved across the sound field to the locations where the bullet hits and ricochets. In this case, the pan follows the object. Chace does not discuss storing, for example, the approaching of the car in one channel and the retreating of the car in another channel. Instead, the panning of Chace is one continuous pan, not divided into separate pans based on whether the object is approaching or retreating. It appears that the Office may regard the fact that the sound is in stereo or surround as meeting the recitation. However, in Chace, a pan following the car while approaching includes sound in both channels in the case of stereo (or all channels in the case of multi-channel sounds), and the sound is also in both channels with the car retreating. In the example, the sounds from the car approaching is included in both channels while the car is approaching, and sounds from the car retreating is held in both channels while the car is retreating. Accordingly, the combination fails to teach or suggest recording spatial approaching sound data in one channel of a single audio file and spatial retreating sound data in another channel of that audio file.

Further, the approach discussed in Chace, in failing to meet the aforementioned recitations, also fails to have the advantage discussed above. Chace states, "For example, when a vehicle approaches the camera, a dynamic increase in the level accompanied by a dynamic decrease in the duration of the delay while create the sound of approaching doppler. As the vehicle recedes, an increase in the duration of the delay along with a decrease in the level will create a receding doppler and a narrowing of the vehicle as it recedes". As discussed, Chace requires modifying sound elements (adjusting the duration of the delay), which requires processor resources or the like. The arrangement recited in Claims 1, 15, 21, and 26 is advantageous in that there is no need to load additional audio files as the object switches from approaching to retreating (or vice versa) or to compute and modify sound elements (e.g., adding a Doppler effect to a sound) or mix sound elements.

For at least these reasons, it is respectfully submitted that claims 1, 15, 21, and 26, as well as the remaining claims which depend therefrom, are in condition for allowance, and notice to that effect is earnestly solicited.

CONCLUSION

It is respectfully submitted that each of the presently pending claims (Claims 1-3, 8, 11-13, 15, 16, 21, 26 and 35-39) is now in condition for allowance and notification to that effect is requested. Examiner is invited to contact the Applicants' representative at the below-listed telephone number if it is believed that the prosecution of this application may be assisted thereby. Although only certain arguments regarding patentability are set forth herein, there may be other arguments and reasons why the claimed invention is patentable. Applicants reserve the right to raise these arguments in the future.

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Respectfully submitted,

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